ACUTE LOW BACK PAIN

Diagnosis/Definition

- A condition of pain in the lower (lumbar-sacral) back region, with or without radiation of symptoms to the buttocks or lower extremities, of less than 6 weeks duration, in the non-pregnant patient.

Initial Diagnosis and management

- Elicitation of history and performance of physical examination. Special attention to presence or absence of "red flags" to include: age <18 or >55; history of malignancy, steroid use, or HIV positivity; weight loss or constitutional symptoms; structural deformity; anal or urethral sphincter disturbance; saddle anesthesia; gait disturbance; or widespread neurologic deficit.
- If red flags are present, diagnostic testing may include plain radiographs; CBC; ESR; bone scan; CT scan and/or MRI scan and electrodiagnosis as indicated.
- If red flags are absent a diagnostic workup is generally not necessary.
- Initial treatment for the first 2 weeks consists of: reassurance that most episodes resolve uneventfully within 6 weeks; encouragement to maintain as close to normal activity as is tolerable; avoidance of bed rest greater than 24 hours; NSAIDS (unless contraindicated); muscle relaxants for up to one week; acetaminophen as needed; weak opiates (codeine; propoxyphene) unless contraindicated; passive modalities (e.g. ice, heat) for symptomatic relief.

Ongoing management and objectives

- If pain has not improved in 2 weeks: re-evaluate for "red flags", change NSAID, and refer to Physical Therapy for evaluation and treatment while continuing to follow patient.

Indication a profile is needed

- Any limitations that affect strength, range of motion, and general efficiency of feet, legs, lower back and pelvic girdle.
- Slightly limited mobility of joints, muscular weakness, or other musculo-skeletal defects that may prevent hand-to-hand fighting and disqualifies for prolonged effort.
- Defects or impairments that require significant restriction of use

Specifications for the profile

- Weeks 1-2
  - Run at own pace and distance
  - No marching greater than 2 miles
  - No sit ups

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- No ruck sacks
- No lifting greater than 15lbs
- No repetitive bending

- Weeks 2-4
  - Gradually return to normal activity

Patient/Soldier Education or Self care Information

- See attached sheet
- Demonstrate deficits that exist
  - Describe/show soldier his/her limitations
- Explain injury and treatment methods
  - Use diagram attached to describe injury, location and treatment.
- Instruct and demonstrate rehab techniques
  - Demonstrate rehab exercises as shown in attached guide
  - Warm up before any sports activity
  - Participate in a conditioning program to build muscle strength
  - Do stretching exercises daily
- Ask the patient to demonstrate newly learned techniques and repeat any other instructions.
- Fine tune patient technique
- Correct any incorrect ROM/stretching demonstrations or instructions by repeating and demonstrating information or exercise correctly.
- Encourage questions
  - Ask soldier if he or she has any questions
- Give supplements such as handouts
- Schedule follow up visit
  - If pain persists
  - The pain does not improve as expected
  - Patient is having difficulty after three days of injury
  - Increased pain or swelling after the first three days
  - Patient has any questions regarding care

Indications for referral to specialty care

- Focal neurologic signs with abnormal imaging studies (urgent consult if worsening) - Neurosurgery or Orthopedics referral. MRI prior to referral (without contrast unless tumor suspected).
- Focal neurologic signs with normal imaging studies (urgent if worsening) Neurology referral.
- Incapacitating radiculopathy unresponsive to therapy - Neurosurgery or Orthopedic referral. MRI of lumbar spine prior to referral (without contrast usually).
- Abnormal plain radiographs associated with red flags - Neurosurgery or Orthopedics referral. MRI of lumbar spine prior to referral (without contrast usually).

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- Loss of bladder or bowel control - (urgent) Neurosurgery referral.
- Extra-spinal conditions such as, Urologic, GI, Gynecologic, Vascular, Neurologic, Rheumatologic, or Systemic - referral to subspecialty appropriate to affected organ system.
- If pain has not improved within 6 weeks, refer to Physical Medicine and Rehabilitation for evaluation and management.

Referral criteria for return to primary care

- Resolution of symptoms; or, implementation of continuing treatment program that can be managed in primary care portal with periodic subspecialty follow-up.

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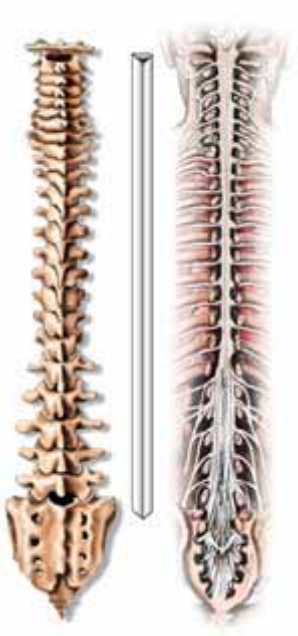

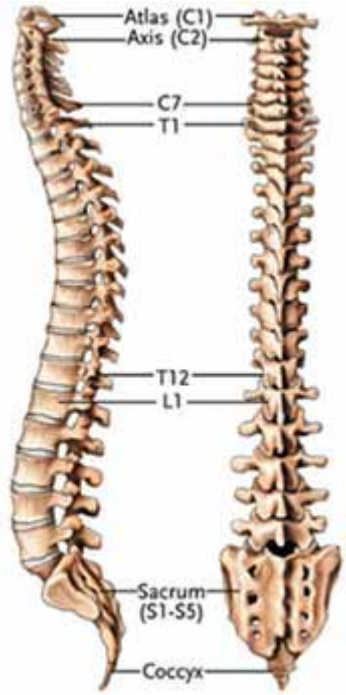

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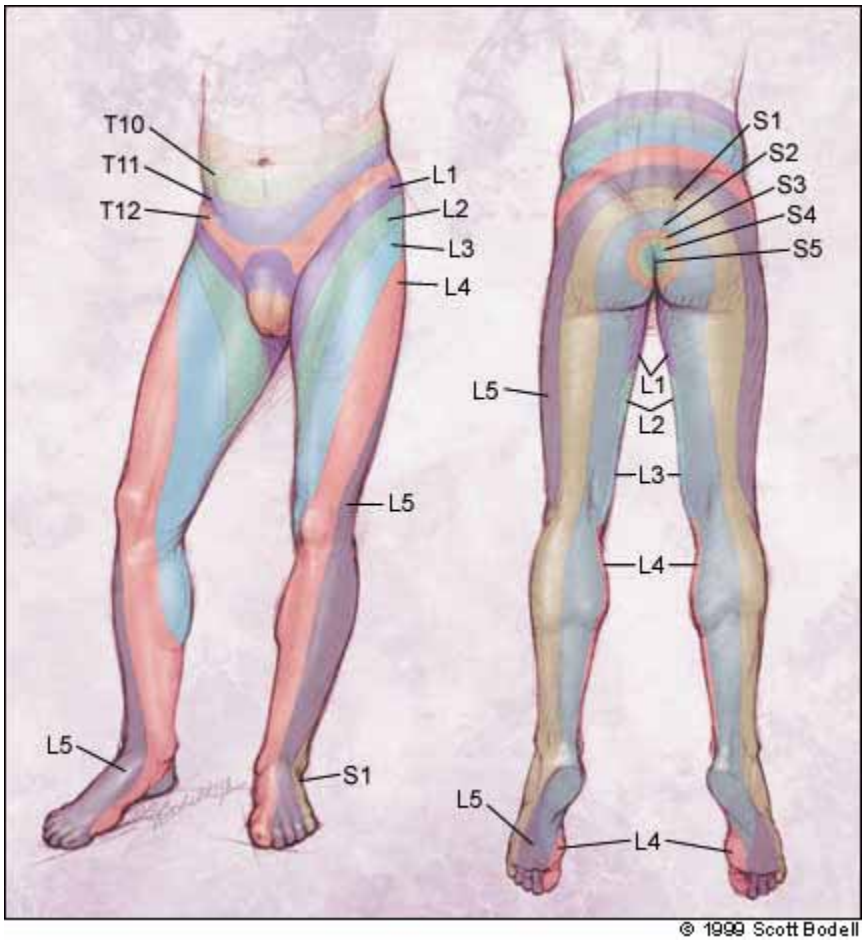

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Exercises

Initial Exercise Program

muscles to squeeze ribs down toward back. Be sure not to hold breath. Hold 5 seconds. Relax. Repeat 10 times.

slowly bending both knees 45 degrees. Hold 5 seconds. Slowly return to upright position. Repeat 10 times.

stabilize low back. Slowly lift leg straight up about 6 to 12 inches and hold 1 to 5 seconds. Lower leg slowly. Repeat 10 times.

Intermediate Exercise Program

up to chest. Hold 20 seconds. Relax. Repeat 5 times on each side.

stretch is felt in back of thigh. Hold 20 seconds. Relax. Repeat 5 times on each side.

Lumbar Stabilization Exercises with Swiss Ball - Abdominal muscles must remain contracted during each exercise. See "Abdominal

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Contraction" exercise from initial exercise program. Perform each exercise for 60 seconds. The further the ball is from your body, the harder the exercise.

1. Lie on your back with knees bent and calves resting on ball.

3. Hold for 20 seconds.
4. Relax.

Repeat 5 times on each side.

1. Slowly bend knees 45 to 90 degrees. Hold 5 seconds. Straighten knees.
2. Slowly bend knees 45 to 90 degrees while raising both arms over head.

Lie on your Stomach over Ball

1. Slowly raise both legs.
2. Hold for five seconds.
3. Relax.
4. Repeat 10 times.

Advanced Exercise Program

keeping knee bent, until a stretch is felt across top of the hip/thigh. Hold 20 seconds. Relax. Repeat 5 times on each side.

until a stretch is felt in the buttock/hip area. Hold 20 seconds. Relax. Repeat 5 times each side.

Lumbar Stabilization Exercises with Swiss Ball - Lie on stomach over ball.

1. "Walk" hands out in front of ball until ball is under legs. Reverse to starting position.
2. "Walk" hands out in front of ball until ball is under legs and slowly. raise alternating arms over head.
3. "Walk" hands out in f of

Aerobic Exercises - Maintain spine in neutral position while stabilizing with abdominal muscles to protect the low back during aerobic exercise.

1. Stationary bike for 20 to 30 minutes.
2. Treadmill for 20 to 30 minute.

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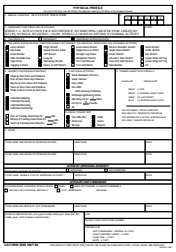

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PATIENT INFORMATION

Why is low back pain common?

Low back pain is one of the most frequent problems treated by orthopaedic surgeons. Four out of five adults will experience significant low back pain sometime during their life. After the common cold, problems caused by the lower back are the most frequent cause of lost work days in adults under the age of 45.

The lower or lumbar spine is a complex structure that connects your upper body (including your chest and arms) to your lower body (including your pelvis and legs). This important part of your spine provides you with both mobility and strength. The mobility allows movements such as turning, twisting or bending; and the strength allows you to stand, walk and lift. Proper functioning of your lower back is needed for almost all activities of daily living. Pain in the lower back can restrict your activity and reduce your work capacity and quality of enjoyment of everyday living.

How is low back pain diagnosed?

Most cases of low back pain are not serious and respond to simple treatments. Your orthopaedist can accurately diagnose and effectively treat most types of low back pain in the office. You will be asked about the nature of your symptoms and whether you sustained an injury. You also will have an examination of your spine and legs. For many episodes of low back pain no expensive tests are needed for initial assessment and treatment.

If your pain is severe and not responding to treatment or if you have significant leg pain, some imaging tests may be required. Plain X-rays will show arthritis and bone diseases, but will not show soft tissues such as the lumbar disks or nerves. For conditions or injuries that involve these soft tissues, CT scan (computerized tomography) or MRI (magnetic resonance imaging) may be needed. Occasionally, a bone scan will be needed to assess bone activity and electrical tests, EMG (electromyography) may be needed to determine if the spine condition has caused nerve or muscle damage.

What are the common causes?

Low back pain can be caused by a number of factors from injuries to the effects of aging.

Low Back Sprain and Strain - The muscles of the low back provide power and strength for activities such as standing, walking and lifting. A strain of the muscle can occur when the muscle is poorly conditioned or overworked. The ligaments of the low back act to interconnect the five vertebral bones and provide support or stability for the low back. A

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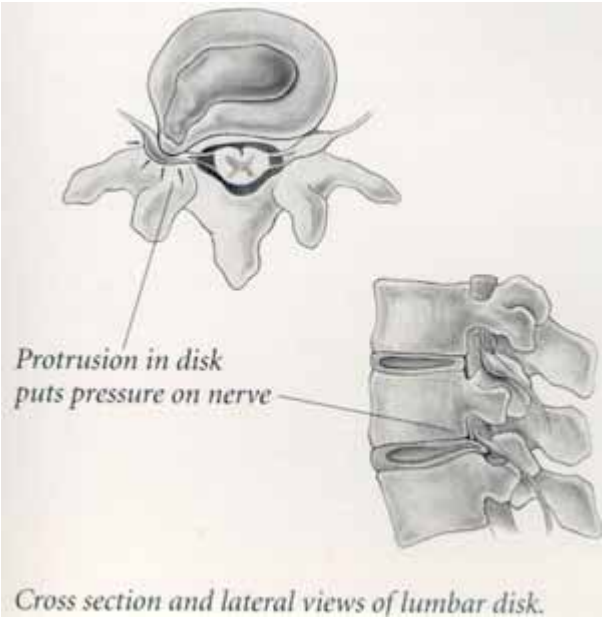
sprain of the low back can occur when a sudden, forceful movement injures a ligament which has become stiff or weak through poor conditioning or overuse.
These injuries, or sprain and strain, are the most common causes of low back pain. Frequently, a combination of other factors may increase the likelihood of injury or disease:

- poor conditioning
- improper use
- obesity
- smoking

The natural effects of normal aging on the body, in general, and low back, in particular, are osteoporosis or decreased amount of bone; decrease in strength and elasticity of muscles; and decrease in elasticity and strength of ligaments. Although you cannot totally halt the progress of these effects, they can be slowed by regular exercise, knowing the proper way to lift and move objects, proper nutrition, and avoidance of smoking.

Age - "Wear and tear" and inherited factors will cause degenerative changes in the disks, called degenerative disk disease, and arthritic changes in the small joints. These changes occur to some degree in everyone. When severe, they can cause low back stiffness and pain. Arthritic bone spurs and inflamed joints can cause nerve irritation and leg pain. Almost everyone develops "wear and tear" changes in their low back as they age, although for most people it causes little pain or loss of function.

Osteoporosis and Fractures - All bones lose bone strength over time and the lumbar vertebrae, particularly in postmenopausal women, can be fractured or compressed from a fall or even from the stress of lifting or everyday activities.



Cross section and lateral views of lumbar disk.

Protruding Disk - The disk is composed of a soft center or nucleus, which, in children and young adults, is jelly-like. The nucleus is surrounded by a tougher outer portion called the anulus. With normal aging, the nucleus begins to resemble the anulus. During middle-age, fissures or cracks may occur in the disk. These may be the source of back pain. If the crack extends out of the disk, material from the disk may push out or rupture. This often is referred to as a herniated or slipped disk. If the protruded disk presses a nerve, it may cause pain in the leg.

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What is the best treatment?

Most low back pain can be safely and effectively treated following an examination by your orthopaedic surgeon and a prescribed period of activity modification and some medication to relieve the pain and diminish the inflammation. Although a brief period of rest may be helpful, most studies show that light activity speeds healing and recovery. It may not be necessary for you to discontinue all activities, including work. Instead, you may adjust your activity under your orthopedist's guidance.

Once the initial pain has eased, a rehabilitation program may be suggested to increase your muscle strength in your low back and abdominal muscles as well as some stretching exercises to increase your flexibility. Weight loss if you are overweight, and quitting smoking if you are a smoker, also will decrease the chances of a recurrence of your low back pain. The best long-term treatment is an active prevention program of maintaining your physical condition and observing proper lifting and postural activities to prevent further injuries.

When is surgery needed?

Most low back pain, whether acute or chronic, almost always can be treated without surgery. The most common reason for surgery on the lower back is to remove the pressure from a "slipped disk" when it causes nerve and leg pain and has not responded to other treatments. Some arthritic conditions of the spine, when severe, also can cause pressure and nerve irritation, and often can be improved with surgical treatment.

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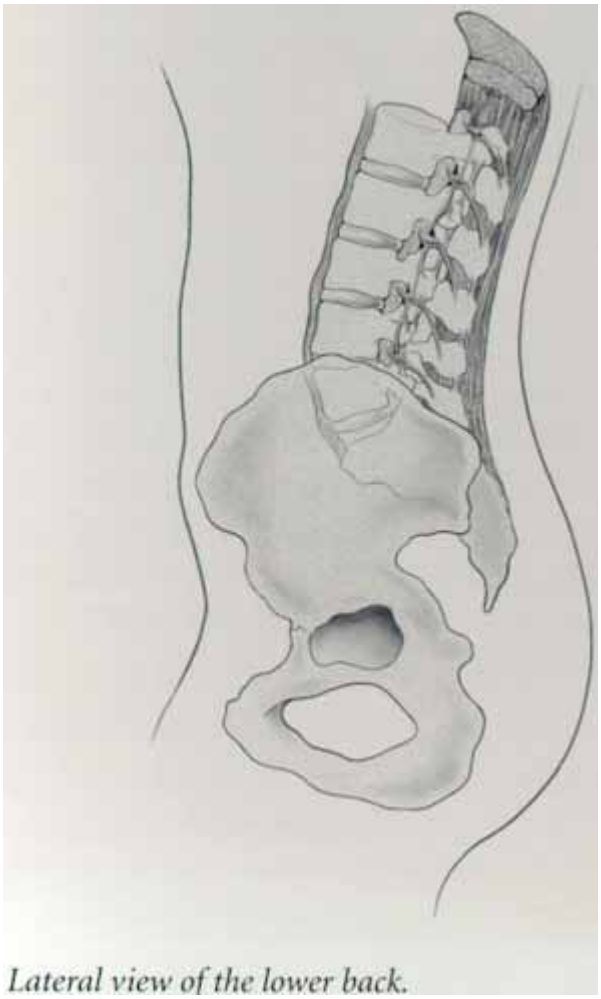
What is the lower back?



Lateral view of the lower back.

Your lower back is a complex structure of vertebrae, disks, spinal cord, and nerves. There are:

- **five bones called lumbar vertebrae** - stacked one upon the other, connecting the upper spine to the pelvis
- **six shock absorbers called disks** - acting both as cushion and stabilizer to protect the lumbar vertebrae
- **spinal cord and nerves** - the "electric cables" which travel through a central canal in the lumbar vertebrae, connecting your brain to the muscles of your legs
- **small joints** - allowing functional movement and providing stability
- **muscles and ligaments** - providing strength and power and at the same time support and stability

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Prevention

The normal effects of aging that result in decreased bone mass, and decreased strength and elasticity of muscles and ligaments, can't be avoided. However, the effects can be slowed by:

- exercising regularly to keep the muscles that support your back strong and flexible
- using the correct lifting and moving techniques; get help if an object is too heavy or an awkward size
- maintaining your proper body weight; being overweight puts a strain on your back muscles
- avoid smoking
- maintaining a proper posture when standing and sitting; don't slouch

Your orthopaedist is a medical doctor with extensive training in the diagnosis and nonsurgical and surgical treatment of the musculoskeletal system, including bones, joints, ligaments, tendons, muscles and nerves.

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Input was provided by:

- Occupational Therapy Clinic
- Physical Therapy Clinic
- Orthopedic Clinic
- Family Practice Clinic
- Okubo Clinic
- 555 Engineers
- 1st Brigade
- 3rd Brigade
- 62nd Medical Brigade

POC:

- Outcome Management

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